

Summary of Changes
ENERGY STAR® for Computer Monitors
Draft 2.5 Version 4.0 Specification

On July 22, 2003, EPA and representatives of the computer monitor industry met in Washington, DC to discuss the Draft 2 (Version 4.0) ENERGY STAR Specification for Computer Monitors. Stakeholder input from this meeting and other discussions has significantly informed the development of the latest proposed specification, Draft 2.5. (Note: Draft 2.5, as opposed to 3.0, reflects EPA's coordination with the European Commission on its draft document numbering protocol.)

While notes and clarifications are found throughout this latest Draft 2.5 Version 4.0 Specification, this summary highlights the major changes made to Draft 2, both in terms of performance requirements and format. For additional details and documentation, including Draft 2, please visit the Monitors section of the ENERGY STAR Product Development Web site at www.energystar.gov/productdevelopment.

The changes and clarifications described below are reflected in the Draft 2.5 ENERGY STAR Eligibility Criteria and are presented with their corresponding section numbers for easy reference.

1) Definitions

Line edits and other revisions have been made to the following definitions in Section 1 for clarity and consistency:

A. Computer Monitor

EPA has made two changes to the computer monitor definition, which require that qualifying monitors: 1) have a screen size greater than 12 inches, and 2) be powered by a separate AC wall outlet or a battery unit that is sold with an AC adapter. These changes were made to ensure that small, handheld devices with LCD monitors or similar products not yet available on the market aren't later considered for qualification under a specification that wasn't developed specifically with these products in mind and therefore is too lenient in terms of the energy requirements.

D. Off Mode/Standby Power

This definition has been revised to be consistent with the same definition in IEC 62301: Household Electrical Appliances – Measurement of Standby Power.

E. Hard Off Mode

Based on manufacturer feedback from Draft 2, a definition for Hard Off Mode has been added to Section 1.

3) Energy-Efficiency Specifications for Qualifying Products

Modest revisions to the two-tiered specification for On Mode are reflected in Section 3.

A. On Mode/Active Power

For Tier 1, the following revised equation applies: $Y = 38X + 30$. Y is expressed in watts and rounded up to the nearest whole number and X is the number of megapixels in decimal form (e.g., 1,920,000 pixels = 1.92 megapixels). Tier 1 levels are based on expanded test data voluntarily submitted to EPA by monitor manufacturers and represent:

- the top 17% of CRTs and 69% of LCDs from this data set for *all three modes* (a model must meet the energy requirements for all three operational modes to earn the ENERGY STAR); and
- the top 37% of CRTs and 98% of LCDs from this data set for *On Mode/Active Power*.

Finally, Tier 1 levels accommodate larger screen sizes (20 inches and above) and widescreen models, as suggested by stakeholders.

For Tier 2, a new equation is provided: If $X < 1$ megapixel, then $Y = 28$; if $X \geq 1$ megapixel, then $Y = 28X$. In other words, monitors with less than 1 million pixels may consume up to 28 watts in On Mode to qualify as ENERGY STAR; for monitors with 1 million pixels or more, On Mode levels are calculated by using the formula $Y = 28X$ (e.g., a 1 million pixel monitor would be allowed 28 watts, as $28(1) = 28$). This On Mode specification recognizes:

- the top 24% of computer monitors in EPA's expanded data set;
- the top 28% of LCDs in *all three modes* (not including widescreen models); and
- the top 47% of LCDs in *On Mode/Active Power* (not including widescreen models).

Tier 2 levels were selected to accommodate larger screen sizes, as encouraged by stakeholders. However, sufficient data is not currently available to properly evaluate widescreens under Tier 2 (see "Widescreen Models" below). Similar to past specifications, EPA has provided Tier 2 to serve as an "energy-efficiency roadmap" for manufacturers.

B. Sleep and Off Modes

1. Tiers 1 and 2

Tier 1 and 2 Sleep and Off Mode levels have not changed and remain consistent with Draft 2.

2. Sleep Mode Exception

This section was added to address qualification requirements for computer monitors with only On/Active and Off/Standby Modes, based on stakeholder comments. In summary, a Sleep Mode is not necessary if the computer monitor can proceed from On Mode/Active Power to Off Mode/Standby Power and meet the ENERGY STAR requirements in the Off Mode/Standby Power.

3. Sleep Mode Enabling

This statement was inserted to ensure that manufacturers take all reasonable steps to enable the Sleep Mode on their computer monitors prior to shipping them to customers.

Widescreen Models

There are no separate specifications for widescreen models and as such, they must comply with Sections 3.A and 3.B. For Tier 2, future revisions or clarifications for widescreen models will be evaluated and considered, when adequate energy consumption data is readily available to EPA.

4) Test Methodology

E. Power Measurement Protocols

Based on an analysis of power variability between samples of models received to date, EPA feels there is sufficient data consistency to reduce the sample size to one serial number per model, **as long as the tested values in all three operating modes are at least 15% (i.e., greater than or equal to 15%) more efficient than the applicable ENERGY STAR levels.** If a tested computer monitor is within 15% (i.e., less than 15%) of the ENERGY STAR specification in any of the three operating modes, then two more units have to be tested. This proposal, based on European Norm 50301, was presented to EPA by a manufacturer at the ENERGY STAR Computer Monitor Partner Meeting in Washington, DC on July 22, 2003. With minor modifications, it has been integrated into Section E of the Test Methodology. Please refer to the Test Methodology for a detailed description and example of this approach.

Based on feedback from international stakeholders, EPA has added language in Section 4.E requiring manufacturers to submit test values at local voltage/frequency conditions. While EPA considered limiting testing to 115 volts at 60 Hz, various concerns were raised about the potential variations in tested values across markets. For example, if reported values at 115 volts, 60 Hz differed from tested values at local conditions, consumers may perceive the reported values as inaccurate or fraudulent. Please note that with this change, manufacturers are still only required to test at one voltage/frequency combination; the default test condition is 115 volts at 60 Hz, but it must change to 100 Volts AC at 50 Hz or 230 Volts AC at 50 Hz for products sold in European, Asian, or other markets that don't operate at 115 volts, 60 Hz.

EPA has revised the statement regarding stable power measurements to include any type of input sync signal check cycle and to cover Sleep Mode/Low Power as well as Off Mode/Standby Power. The statement allows manufacturers to ignore the input sync signal check cycle when metering models in Sleep and Off Modes.

I. Test Method

EPA also has added language to clarify its interest in average test values rather than peak or instantaneous power measurements.

6) Effective Date

A. Qualifying Products Under Tier 1 of the Version 4.0 Specification

EPA has provided a new Tier 1 effective date of **January 1, 2005** in Draft 2.5. All products, including models originally qualified under Version 3.0, with a **date of manufacture** on or after January 1, 2005, must meet the Tier 1 (Version 4.0) requirements in order to qualify for ENERGY STAR (including additional shipments of models originally qualified under Version 3.0).

Due to the elimination of grandfathering, EPA has delayed the introduction of the Version 4.0 specification by approximately one year, until January 1, 2005. This one-year lead-time is provided to allow manufacturers to make appropriate plans or other adjustments based on their products' design and manufacturing cycles.

B. Qualifying and Labeling Products Under Tier 2 of the Version 4.0 Specification

A Tier 2 effective date of **January 1, 2006** is provided in Draft 2.5. Consistent with Tier 1, a product model must meet the ENERGY STAR specification in effect on the unit's date of manufacture in order to qualify as ENERGY STAR.

D. Fulfillment of Partner Commitments

EPA has added Section 6.D, Fulfillment of Partner Commitments to this Draft 2.5. The language allows additional time for partners to implement the labeling requirements. Partners must display the label on product packaging, in product literature, on their Internet sites, and on qualifying models according to one of four options (i.e., permanent label, temporary label, electronic label, or labeling via advertising) by January 2006; this date was specifically selected to coincide with the Tier 2 effective date and the anticipated adoption of the new ENERGY STAR label by the European Commission.

7) Future Specification Revisions

Minor changes have been made to Section 7, Future Specification Revisions to remove any specific timeframes for consideration of revisions. In its recent experience, EPA has learned that these timeframes are often difficult to abide by, as markets are impossible to predict and EPA and stakeholder priorities evolve over time. Specification reviews may or may not lead to substantive changes, and are conducted solely to ensure that future specifications are both in line with the ENERGY STAR guidelines and the current marketplace.